Comments on the Washington State PBDE Chemical Action Plan,
Department of Ecology Publication No. 04-03-045,
Department of Health Publication No. 333-060,
Draft, October 11, 2004

Submitted by John Abbotts and Clark Williams-Derry
Northwest Environment Watch
November 9, 2004

We appreciate the preparation by state agencies of the Draft PBDE (polybrominated diphenyl ethers) Chemical Action Plan, and the opportunity for public comment. Northwest Environment Watch (NEW) is a Seattle-based non-profit research and communication center that covers the Pacific Northwest, including Washington, Oregon, Idaho, and British Columbia. Among other activities, NEW monitors indicators of sustainability through its Cascadia Scorecard. In connection with the Scorecard's pollution indicator, this September NEW reported on the detection of high levels of PBDE flame retardants in the bodies of each of 40 women tested in the Pacific Northwest (report and supplementary data available at *www.northwestwatch.org/toxics*). That report made several recommendations for Northwest jurisdictions, and our comments evaluate the Draft Action Plan in relation to those recommendations.

In summary, our comments address the following points:

1. We commend the Washington state government for its leadership on persistent toxic chemicals.
2. We recommend that the action plan incorporate a full phase out for the Deca-BDE formulation.
3. We commend state agencies for their plans to evaluate the issue of PBDE sources in homes and offices, and develop recommendations for consumers and businesses.
4. We are gratified that the Action Plan considers a biomonitoring option. We recommend more discussion of the rationale for the particular option selected.
5. The PBDE story nationally demonstrates the systemic weaknesses of federal requirements for testing toxic chemicals. We recommend that state agencies address what actions they might take to prepare for future chemical surprises that seem inevitable given the current system.

Each of these points is developed in more detail in the following sections:

1. <u>The state program</u>.

We commend the Washington state government for its leadership on persistent toxic chemicals, including the development of a state program on such chemicals, the Governor's executive order in early 2004 directing that PBDE flame retardants be incorporated into that state program, and for the development of the Draft Chemical Action Plan issued in October. The Draft contains a comprehensive compilation of

information on PBDEs; and in that regard stands as a very useful reference document in its own right.

2. Recommendation on the Deca-BDE formulation.
At the public meeting in Seattle on October 19, we formally submitted for the record the detailed analytical data that supplement the NEW September report (also accessible via *www.northwestwatch.org/toxics*). Those data include the clear detection of deca in 24 of the 40 women tested. Ten of the women carried deca levels above 1 part per billion, with 4.3 parts per billion representing the highest level detected. This latter level of the deca congener alone exceeds the levels of *total* PBDEs typically found in European and Japanese populations. Levels of deca in the most exposed residents of the Pacific Northwest are comparable to those of Swedish electronics dismantlers, who are occupationally exposed to Deca-BDE.

The Draft Action Plan also cites the earlier work of Dr. Arnold Schecter at the University of Texas as another study that detected the deca congener [Draft Action Plan, p. 11]; the maximum level of deca among Dr. Schecter's study population was 8.2 parts per billion. We thus believe the Draft Action Plan reflects the current scientific consensus when it finds that deca has been detected in members in the general population [p. 11], and when it further finds that, "There is a weight of evidence suggesting that highly brominated PBDEs are precursors of the more bioaccumulative and persistent lower brominated PBDEs, as well as PBDFs [polybrominated dibenzofurans]." [p. 34] With this weight of evidence, the state action plan is justified in expressing the policy goal that, "Deca-BDE use should be decreased, not allowed to increase." [p. 58]

The Draft Action Plan recommends that manufacture, distribution, or sale of the new products containing the Penta-BDE and Octa-BDE formulations be prohibited in the near future. The approach to the Deca-BDE formulation is slightly different, recommending that manufacture, distribution, or sale of Deca-BDE be prohibited in designated products, specifically consumer electronics and textiles. [Draft Action Plan, p. v]

We express our concern over the possibility of "deca creep," that is, the potential for Deca-BDE use to increase if it were to replace current uses of Penta- and Octa-BDE as those commercial formulations are phased out. The Draft explicitly recognizes that potential for textiles by designating those products in the Deca-BDE recommendation. It seems preferable to close all such potential loopholes. The September NEW report recommended that Northwestern jurisdictions should ban PBDEs from commerce, including a phase out of the Deca-BDE formulation. We reiterate that suggestion here, and recommend that as a means of achieving the state's policy goals, the Action Plan should incorporate a full phase out of all uses of Deca-BDE, rather than limiting the phase out to specified products.

3. Existing PBDE sources.
The September NEW report also recommended that Northwest jurisdictions should develop strategies and advice to help people remove PBDEs from their homes and workplaces. We recognize that the wholesale replacement of items such as furniture and

electronic devices would be prohibitively expensive for many Washington residents, and could be counter-productive in addition if such activities increase exposures by suspending PBDE-laden dusts.

Nonetheless, as the Draft Action Plan recognizes, "Even if no new PBDE products were produced or sold, merely dealing with existing products will require programs to limit human exposure and prevent the continued release of PBDEs into the environment for decades to come." [p. iv] However, with the current lack of knowledge on pathways for human exposure to PBDEs, the agencies' plans to evaluate this issue and develop recommendations for consumers and businesses seem judicious. We commend the agencies for their approach to this problem.

4. Biomonitoring.

The NEW September report also recommended biomonitoring of blood and breastmilk for PBDEs and other toxic substances. Such programs would serve as early warning systems to catch emerging toxic exposures; they would also provide indicators of success in reducing sources of exposure.

We are gratified that the Draft Action Plan considers biomonitoring of the blood of workers who may be most highly exposed to PBDEs. We also recognize that biomonitoring represents a new responsibility for state agencies, and funding limits may represent obstacles to a wider program. If funding does represent a limit, then efforts to coordinate with federal agencies such as the Centers for Disease Control (CDC), which already conducts biomonitoring, seem logical. Our understanding is that CDC does intend to test for PBDEs sometime in the future, although the Centers do not currently list these chemicals for their next national biomonitoring report (at *www.cdc.gov/exposurereport/pdf/third_report_chemicals.pdf*). In addition, it seems that a current drawback in relying on CDC data is that the Centers do not report results by geographic region. Such a distinction would be necessary before Washington state agencies could use CDC data to gauge the effectiveness of their own regulatory actions.

Unlike other recommendations in the Draft Action Plan, the Monitoring and Research category does not contain a "Rationale" section. We recommend that the Plan include a discussion of the practical obstacles to a wider biomonitoring plan at the state level, along with a discussion of changes to the CDC program necessary to make it more useful for the purposes Washington state.

5. Federal regulatory framework for toxic chemicals.

The chronology of PBDEs illustrates the systemic weaknesses of the current federal regulatory framework for toxic chemicals: federal regulations do not require sensible precautionary measures, including adequate health and safety testing, for industrial chemicals to be used in the marketplace. Although PBDEs are close chemical cousins of PCBs (polychlorinated biphenyls), they remained in commerce after manufacture of PCBs was prohibited in North America in the 1970s. Information on the toxicity of PBDEs and their accumulation in human bodies was provided not by the chemical industry, but by independent scientists in Europe, Japan, and North America. At best, the

chemical industry was “missing in action” with regard to the public release of toxicity information on these chemicals. And even though the U.S. EPA had the regulatory authority to require toxicity testing, the agency did not request such testing on these chemicals. Moreover, regulatory actions on PBDEs were taken first in Europe, before EPA reached a negotiated settlement with the only U.S. manufacturer to phase out production of the Penta- and Octa-BDE formulations.

We reiterate the commendation of state agencies for developing the PBDE Action Plan, but the plan does burden state government with new responsibilities. As long as the manifest deficiencies of the federal system remain in place, the question seems when, not whether, the PBDE story will be replicated in the future with other chemicals. With this reality, it seems useful for the Action Plan to include a “lessons learned” section with regard to the regulatory framework, and address what measures Washington state agencies could establish as an early warning system to prepare for future situations where other toxic chemicals might break into public attention, unanticipated by federal agencies.

Statement of Northwest Environment Watch
Before the Washington State Public Meeting on PBDEs (polybrominated diphenyl ethers)
Seattle, October 19, 2004

Members of the meeting panel, thank you for the opportunity to present a statement. My name is John Abbotts; I am research consultant to Northwest Environment Watch (NEW), a Seattle-based non-profit research and communication center that covers the Pacific Northwest region. At the end of September NEW reported on the detection of high levels of PBDE flame retardants in the bodies of each of 40 women tested in the Pacific Northwest (report available at www.northwestwatch.org/toxics).

We wish to commend the Washington state government for its leadership on persistent toxic chemicals, including the development of a state program on such chemicals, the Governor's executive order directing that PBDE flame retardants be incorporated into that state program, and for the development of the draft chemical action plan presented this evening. We are also gratified that state agencies cited the September NEW report in the draft action plan, including the detection of the deca-PBDE congener in human bodies.

On that topic, we wish to submit for the record the detailed analytical data that supplement the NEW report, including the clear detection of deca in 24 of the 40 women tested. Ten of the women carried deca levels above 1 part per billion, with 4.3 parts per billion representing the highest level detected. This latter level of the deca congener alone exceeds the levels of *total* PBDEs typically found in European and Japanese populations. We believe the draft state action plan reflects the current scientific consensus when it finds that deca has been detected in members in the general population [p. 11], and when it further finds that, "There is a weight of evidence suggesting that highly brominated PBDEs are precursors of the more bioaccumulative and persistent lower brominated PBDEs, as well as PBDFs [polybrominated dibenzofurans]." [p. 34]

With this weight of evidence, the state action plan is justified in expressing the policy goal that, "Deca-BDE use should be decreased, not allowed to increase." [p. 58] On that particular point, we express our concern for the possibility of "Deca creep," that is, the potential for Deca use to increase if it were to replace current uses of Penta and Octa-BDE as those commercial formulations are phased out. As a means of achieving the state's policy goal, we therefore wish to recommend that the action plan incorporate a full phase out of all uses of Deca, rather than limiting the phase out to specified products.

Thank you again for holding this public meeting, and for allowing spoken comments.

Flame Retardants in the Bodies of Pacific Northwest Residents

By Northwest Environment Watch, http://www.northwestwatch.org/toxics

Data Supplement: PBDE levels in the Pacific Northwest

Levels were reported as parts per trillion in milk fat; divide by 1000 to convert to parts per billion.
Levels were determined on a weight wet basis, then converted to a fat basis based on fat% of each sample, and generally reported to three significant digits; consequently there may be small inconsistencies in totals and subtotals.
Labels to the right of reported values: *=less than method detection limit; B=below method quantitation limit; these designations are as provided by the performing laboratory.

	PBDE congeners:																				
Sample	PBDE-32		PBDE28/33	Total Tri-PBDE	PBDE-71		PBDE-47	PBDE-66	Total Tetra-PBDE	PBDE-100	PBDE-99	PBDE-85	Total Penta-PBDE	PBDE-154	PBDE-153	Total Hexa-PBDE	PBDE-183	Total Hepta-PBDE	Deca-PBDE, PBDE-209		Total PBDEs
British Columbia																					
1	7	*	576	583	25		4,920	22	4,960	738	789	5	1,530	50	842	892	91	91	285	*	8,350
2	36		1,360	1,400	123		15,600	108	15,800	1,590	3,120	231	4,940	1,440	1,390	2,840	358	358	1,160		25,300
3	239		2,510	2,750	1,060		78,300	1,030	80,300	13,200	37,700	3,350	54,200	1,270	4,600	5,870	177	177	721		144,000
4	124		1,660	1,790	267		13,400	134	13,800	3,800	8,950	574	13,300	417	1,720	2,140	314	314	402		31,800
5	11		1,320	1,330	34		14,600	30	14,700	1,940	2,890	275	5,110	152	841	993	203	203	441	B	22,800
6	9		257	266	40		2,630	42	2,720	549	810	4	1,360	25	1,070	1,100	895	895	1,460		6,340
7	910		20,000	20,900	771		201,000	848	203,000	37,200	27,600	4,020	68,800	1,790	12,500	14,300	395	395	553		308,000
8	118		1,270	1,390	182		19,500	140	19,800	5,620	4,020	557	10,200	285	4,840	5,130	106	106	484		37,100
9	9	*	1,570	1,570	34		18,100	29	18,100	2,060	4,110	261	6,430	183	850	1,030	248	248	4,240		31,600
10	11	*	364	375	230		8,630	29	* 8,890	3,640	2,470	9	* 6,120	174	33,500	33,700	268	268	639		50,000
Montana																					
11	5	*	931	937	22	*	5,710	16	* 5,750	1,100	1,700	125	2,920	97	1,510	1,610	91	91	262		11,600
12	159		4,560	4,720	380		20,900	19	* 21,300	1,930	2,220	5	* 4,160	157	1,680	1,840	283	283	2,700		34,900
13	645		7,370	8,020	867		98,500	707	100,000	35,500	19,500	2,600	57,500	1,290	24,600	25,900	390	390	273	*	192,000
14	3	*	716	719	134		4,020	14	* 4,170	495	1,030	53	1,580	50	1,340	1,390	114	114	774		8,740
15	206		1,220	1,430	352		18,600	232	19,200	8,970	4,620	408	14,000	360	28,400	28,800	229	229	1,300	B	64,900
16	7	*	1,660	1,670	35	*	13,400	26	* 13,400	3,770	3,270	286	7,320	160	4,630	4,790	147	147	1,570		28,900
17	553		5,710	6,270	19	*	142,000	14	* 142,000	76,500	13,400	4,440	94,300	3,940	72,800	76,700	373	373	1,250		321,000
18	904		17,400	18,300	3,430		164,000	2,880	170,000	21,600	49,200	4,730	75,600	2,010	8,180	10,200	160	160	878		275,000
19	142		2,570	2,710	1,010		66,800	756	68,600	16,100	22,800	1,450	40,400	1,280	34,700	36,000	204	204	1,360		149,000
20	150		2,340	2,490	13	*	26,000	12	* 26,100	6,850	3,520	406	10,800	392	4,740	5,130	167	167	1,620		46,200
Oregon																					
21	5	*	1,240	1,250	235		19,300	135	19,700	5,180	5,220	478	10,900	286	5,250	5,540	278	278	665		37,700
22	1,300		16,800	18,100	856		201,000	936	203,000	27,500	19,800	3,420	50,600	1,540	11,400	12,900	117	117	508	B	285,000
23	1,090		5,380	6,470	2,800		144,000	1,980	149,000	19,300	40,900	3,640	63,900	1,950	19,500	21,400	168	168	412	B	241,000
24	22	*	2,000	2,270	494		27,000	427	27,900	5,080	7,130	625	12,900	271	5,830	2,710	57	57	60	*	47,200
25	34	*	2,489	2,510	105	*	29,600	99	* 29,600	15,400	4,110	22	* 19,500	709	89,300	90,000	120	120	131	B	142,000
26	141		6,970	7,110	496		47,600	263	48,300	16,800	6,310	1,400	24,500	967	20,900	21,900	440	440	270		102,000
27	103		1,780	1,880	354		30,600	298	31,200	5,310	6,570	697	12,600	340	3,590	3,930	290	290	4,260		54,200
28	454		5,520	5,980	30	*	103,000	26	* 103,000	21,000	13,000	2,010	36,000	1,300	16,800	18,100	257	257	662	B	164,000
29	411		4,500	4,910	630		58,600	468	59,700	12,100	6,660	1,030	19,800	687	10,600	11,300	221	221	101	*	96,000
30	78		536	614	151		7,170	12	* 7,340	1,450	1,280	100	2,830	89	3,260	3,350	152	152	193	B	14,500
Washington																					
31	459		6,630	7,090	652		87,800	34	* 88,500	23,200	15,700	2,460	41,400	1,100	18,000	19,100	117	117	76	*	156,000
32	8	*	3,780	3,790	783		73,300	693	74,800	10,300	18,800	1,700	30,800	2,100	5,580	7,680	170	170	286		117,000
33	7	*	884	890	39	*	7,950	38	* 8,030	884	1,840	92	2,810	64	992	1,060	6	* 6	48	*	12,800
34	438		5,460	5,900	1,020		74,500	644	76,200	14,600	14,900	1,030	30,500	713	12,300	13,000	157	157	230		126,000
35	241		1,520	1,760	499		33,600	414	34,500	4,640	12,100	934	17,700	569	1,750	2,320	141	141	161		56,200
36	10	*	641	651	45	*	7,010	44	* 7,100	1,070	1,400	105	2,570	194	* 2,080	2,280	133	133	374		12,700
37	22	*	5,780	5,800	75	*	76,200	71	* 76,400	38,200	14,300	2,190	54,700	2,980	169,000	172,000	251	251	207	B	309,000
38	10	*	745	754	158	B	7,940	29	* 8,130	921	1,720	128	2,770	140	1,120	1,260	511	511	137	*	13,400
39	47	*	1,620	1,670	162	*	33,100	142	* 33,400	3,860	5,490	712	10,100	725	* 2,370	3,100	1,550	1,550	399	B	49,800
40	24	*	749	772	81	*	12,800	71	* 12,900	2,860	4,020	288	7,170	209	* 4,690	4,900	358	358	334		26,100